

SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found in claims 6 and 8 as originally presented. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment claims 1-5 and 9-13 will now be active in this application.

REQUEST FOR RECONSIDERATION

The present invention is directed to a polyester resin composition for a toner.

Applicants wish to thank Examiner Ronesi for the helpful and courteous discussion held with their U.S. representative on May 3, 2005. At that time, Applicants' U.S. representative argued that forming a polyester resin by condensing raw material monomers in the presence of a tetra-substituted titanium catalyst and an inorganic phosphorous compound was nowhere disclosed or suggested in the cited prior art of record. The following is intended to expand upon the discussion with the Examiner.

Polyester resins have been used as binder resins for toners. The increased demand for color toners have highlighted some properties of polyester resins which are undesirable. More specifically, color reproducibility combined with durability can be difficult to obtain with a polyester resin. Accordingly, polyester resins suitable for binders in color toners are sought.

The present invention addresses this problem by providing for a polyester resin composition in which raw material monomers are condensed in the presence of a tetra-substituted titanium catalyst and an inorganic phosphorous compound. Applicants have discovered that such a combination of components provides for a polyester resin which gives good performance in a colored toner binder. Such a polyester resin is neither disclosed nor suggested in the cited prior art of record.

The rejection of Claims 1-3, 5-8, 11 and 13 under 35 U.S.C. § 102(b) over McClelland (U.S. 3,965,071), of Claims 1-8, 11 and 13 under 35 U.S.C. § 102(b) over Duan (U.S. 2002/0098972), of Claims 1-3, 5-8 and 11-13 under 35 U.S.C. § 102(b) over Barkey (U.S. 5,217,440) and of Claim 8 under 35 U.S.C. § 103(a) over any one of Ohtani et al. (U.S. 4,789,613), McClelland, Duan, or Barkey et al. in view of Schiraldi (U.S. 5,922,829) are respectfully traversed.

None of the cited prior art of record discloses or suggests a polyester resin produced by condensing raw material monomers in the presence of a tetra-substituted titanium catalyst and an inorganic phosphorus compound.

McClelland describes the formation of a polyester or copolyester in the presence of a soluble titanium compound catalyst (column 1, lines 33-38), without an inorganic phosphorus compound. After esterification is substantially complete, the titanium catalyst is deactivated by reaction with a phosphoric acid or with a phosphate ester wherein polycondensation is then further conducted in the presence of an antimony and/or a germanium compound catalyst (column 1, lines 38-43). Accordingly, the reference fails to disclose or suggest condensation in the presence of a titanium catalyst **and** an inorganic phosphorous compound.

In contrast, the present invention is directed to a polyester resin composition prepared **by condensing** a raw material monomer **in the presence of a titanium catalyst** of a specified structure **and in an organic phosphorus compound**. Applicants note that the claims have been amended to recite that the polyester is the result of polymerizing monomer in the presence of a tetra-substituted titanium catalyst and an inorganic phosphorous compound. As the cited reference fails to disclose condensation in the presence of both a titanium catalyst and an inorganic phosphorus compound, the claimed invention is clearly neither anticipated nor made obvious from this reference and accordingly withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

Duan (U.S. 2002/0098972) describes at paragraphs [0010] and [0013], a composition which can be used for producing polyester which “consists essentially of” or “consists of”, a titanium compound, a glycol, a phosphorous compound and optionally water. The titanium compound may be an organic titanium compound such as a titanium tetrahydrocarbyloxy (paragraphs [0016] and [0017]). However, the titanium compound and glycol are reported to react to form a titanium glycolate which is in complex with the phosphorous compound (paragraph [0025]). Accordingly, while the reference starts with a titanium compound having four separate substituents, the reference clearly teaches ligand exchange to form a compound having **only two bidentate ligands** in the form of a glycolate. As such, the reference fails to disclose or suggest using as a catalyst a tetra-substituted titanium compound.

In contrast, the present invention is directed to a polyester resin produced by condensing raw material monomers in the presence of a **tetra-substituted** titanium catalyst. Applicants note, the claims have been amended to recite the use of a tetra-substituted titanium catalyst. As the reference fails to disclose or suggest a tetra-substituted titanium catalyst, the claimed invention is clearly novel over the cited reference and accordingly withdrawal of the rejection under 35 U.S.C. § 102(b) is respectfully requested.

Moreover, the present invention would not have been obvious over the disclosure of this reference as the reference in no way suggests using a tetra-substituted titanium catalyst in the formation of a polyester. It is noted, the reference reacts an otherwise tetra-coordinated titanium compound with bidentate glycol, to form a titanium glycolate, a structure which has **only two bidentate ligands**. As such, the reference fails to disclose or suggest a **tetra-substituted titanium catalyst** for a polyester resin. To the contrary the reference teaches away from the claimed tetra-substituted titanium catalyst by failing to use such a compound in the preparation of a polyester, rather reacting such a tetra-substituted compound with glycol to form a disubstituted titanium catalyst. As such, by reacting a tetra-substituted

titanium compound the reference clearly does not suggest using a tetra-substituted titanium catalyst in the presence of an inorganic phosphorous compound in the formation of a polyester resin. For this reason, the claimed invention is not obvious over the disclosure of Duan.

Barkey describes the formation of a polyester in the presence of a transesterification catalyst such as a titanium, zinc or manganese compound including a tetraisopropyl titanate (column 6, lines 30-57). The reference describes that highly reactive catalysts may be reduced by adding end capping agents, poorly reacted polymer precursors or catalyst poisons or deactivators, such as phosphoric acid (column 6, lines 11-14 and 26-27). However, the reference fails to disclose or suggest the specific combination of a tetra-substituted titanium catalyst in the presence of an inorganic phosphorous compound and as such, the claimed invention is clearly not suggested by the cited prior art of record.

Ohtani et al. merely describes the incorporation of a titanate as a dielectric in a toner composition (column 6, lines 33-35). The reference describes that calcium phosphate may be used as a dispersion stabilizer (column 5, lines 25-32) however fails to disclose or suggest using a titanium catalyst to conduct polymerization **in the presence of** an inorganic phosphorous compound and accordingly the claimed invention is neither anticipated nor made obvious from this reference.

Schiraldi describes an organic phosphorous compound as a catalyst/stabilizer (column 5, lines 30-33). The reference fails to disclose the use of an inorganic phosphorous compound in the production of the polyester resin.

As the cited references fail to disclose or suggest using a tetra-substituted titanium catalyst in the presence of an inorganic phosphorous compound, the claimed invention is clearly neither anticipated nor made obvious from these references and accordingly

withdrawal of the rejections under 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) are respectfully requested.

The rejection of claim 9 under 35 U.S.C. § 112, second paragraph has been obviated by appropriate amendment.

Applicants have now amended claim 9 consistent with the Examiner's interpretation of the term to mean "a bisphenol adduct". No new matter would be added to this application by entry of this amendment. Applicants' amendment is not a narrowing amendment for the purposes of patentability and should not limit the interpretation of the scope of the claims under the doctrine of equivalents. In view of Applicants' amendment, withdrawal of this ground of rejection is respectfully requested.

Applicants submit this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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